King Saud University
College of Computer & Information Sciences
Dept. of Computer Science
FUNDAMENTALS OF DATABASE SYSTEMS
(CSC380)
Second Semester 1439/1440 AH

PROJECT #16:

GAME STORE DATABASE

Prepared by

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Instructor:

Dr. Kamel-Dine Haouam

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Introduction

- The GAME STORE database keeps track of a game store's branches, games, employees and suppliers (Development companies).

- The game store has several branches, each branch has a unique ID, telephone number and a single location.

- A branch sells games, each game has a unique name, genre, age limit and price. A game can be played on one platform or several.

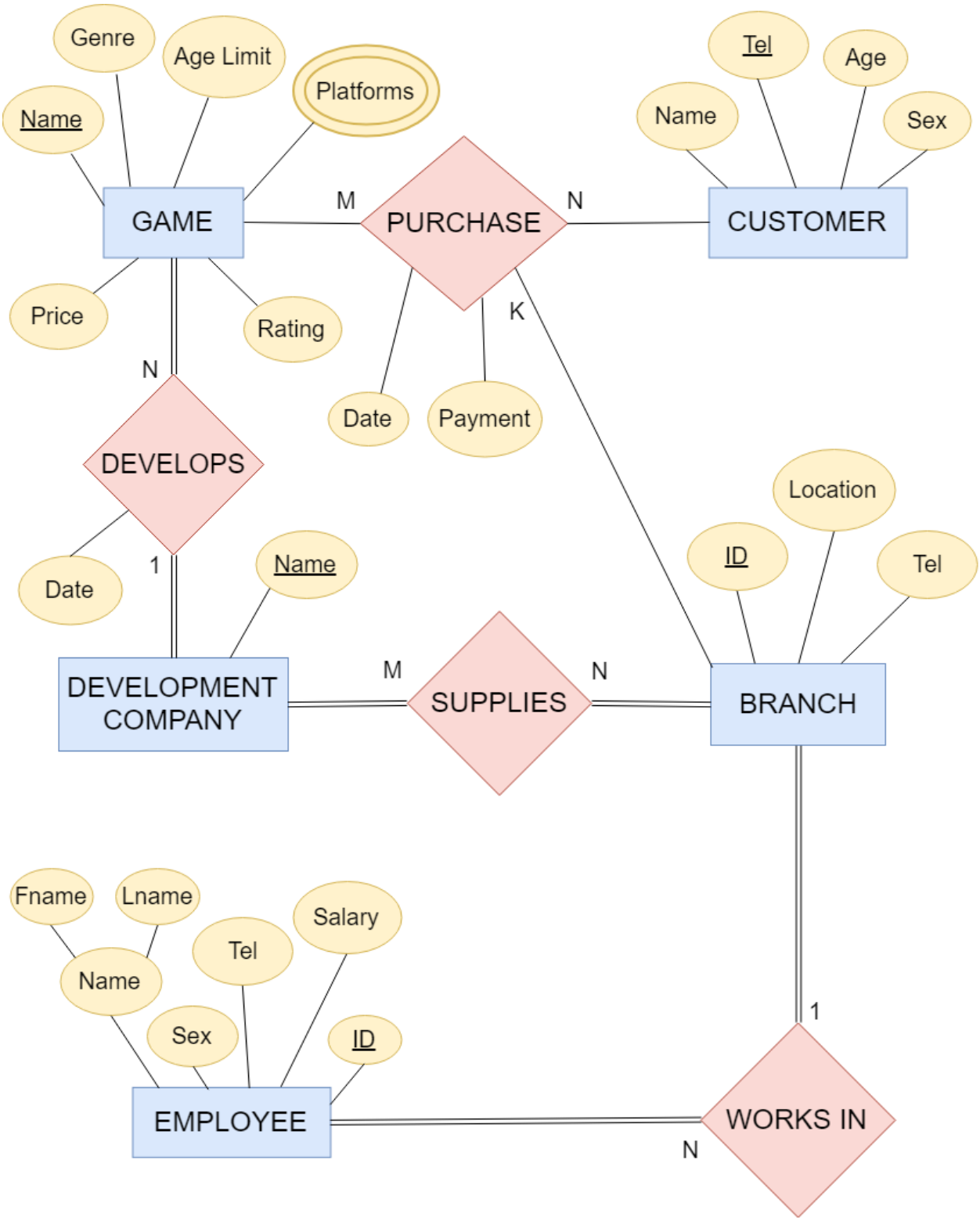
- We store each employee's name, unique ID, telephone number, sex, salary. An employee can only work in one branch, and a branch can have many employees.

- A branch can sell several games to several customers, a customer has a name, unique telephone number, age, sex.

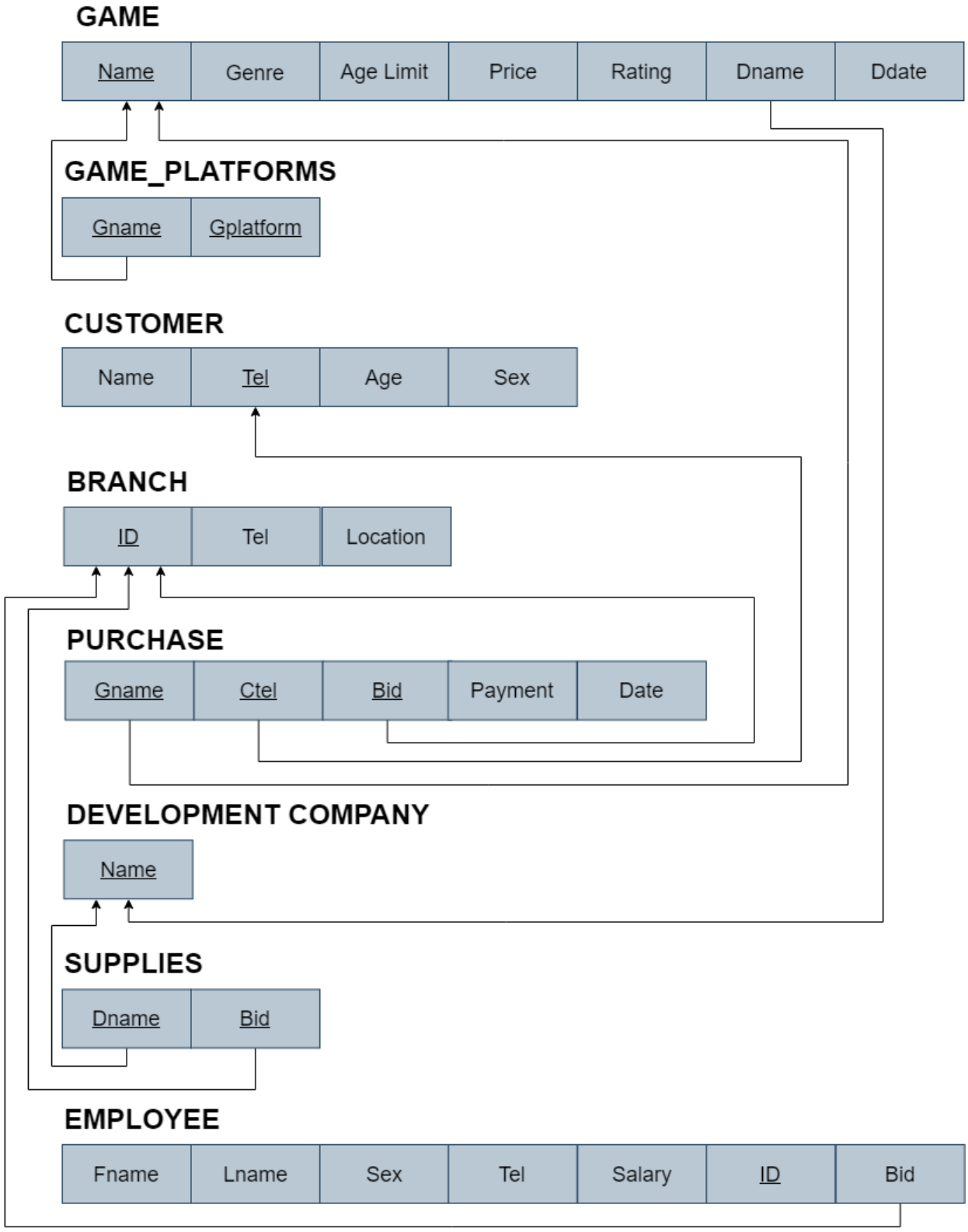
- A customer can buy several games from several branches, and a game can be sold by several branches to several customers. We keep track of all payments and dates of purchases.

- We keep track of the development companies that has developed each game and supplied it to the branches for customer preferences. A company may supply to several branches. And we keep track of development company's unique name, and the date of developing each game.

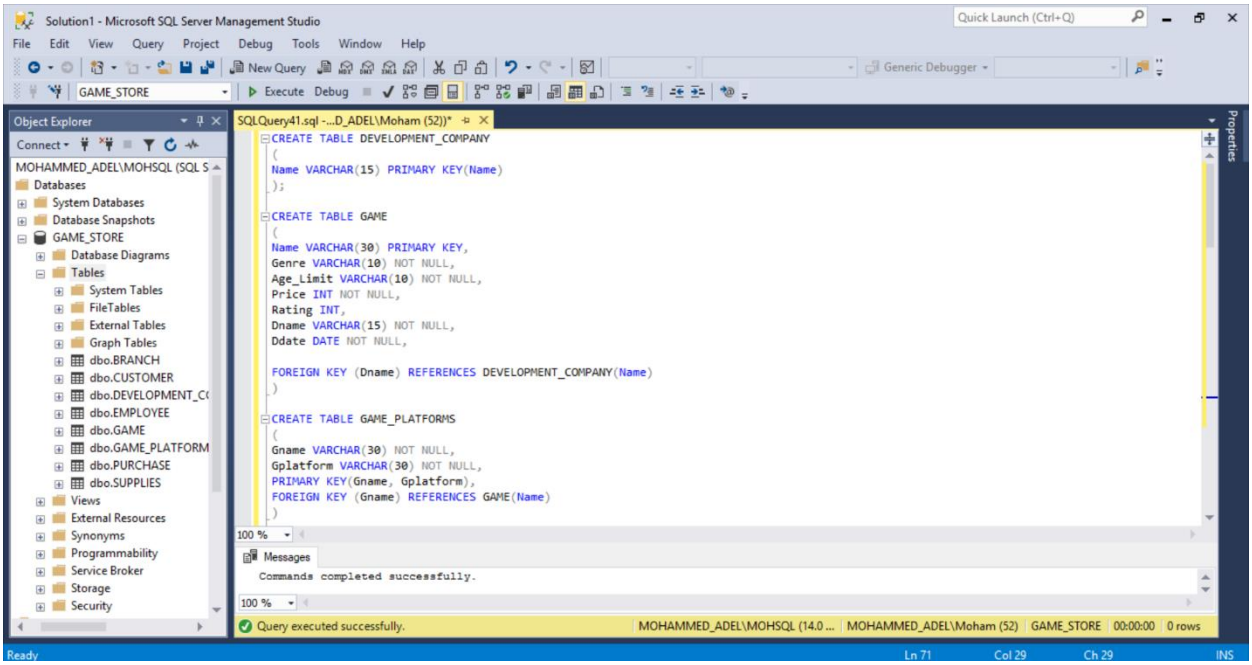
Game Store ER Diagram

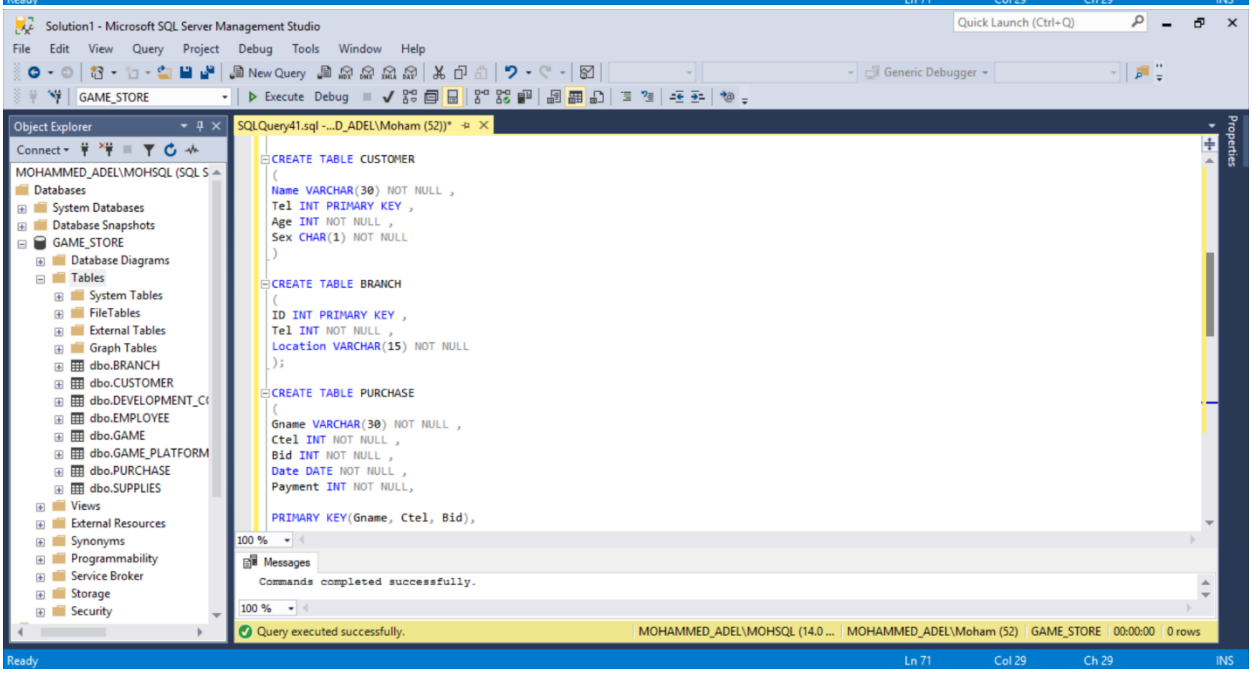


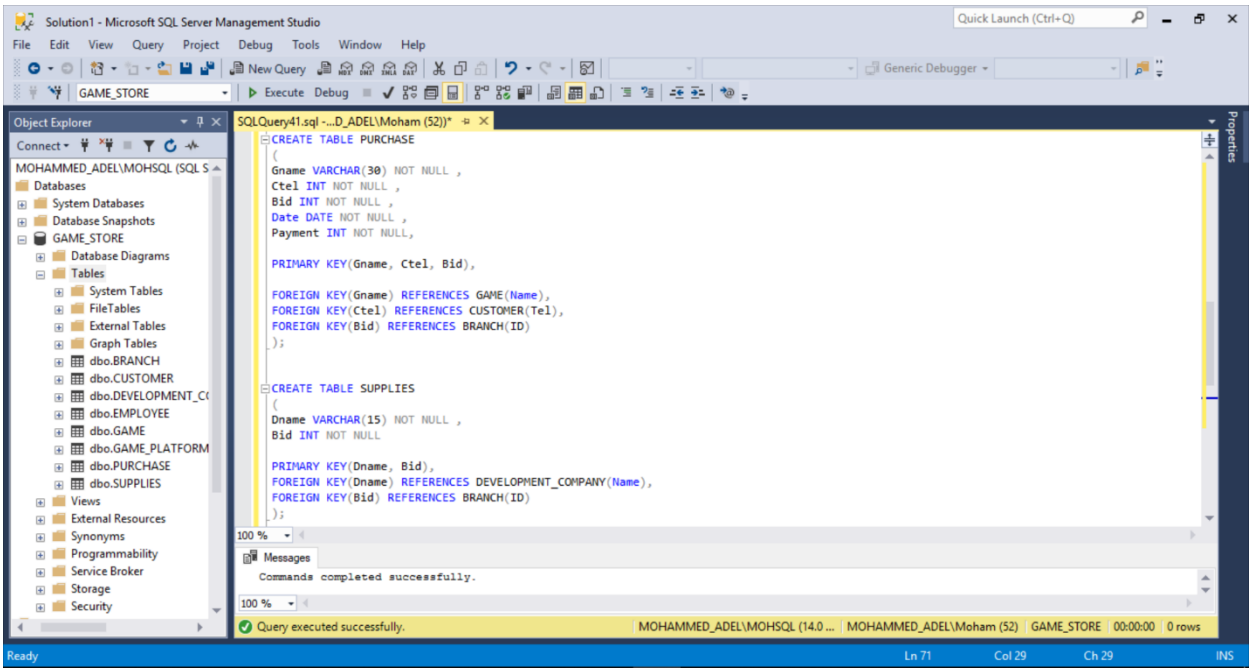
Game Store Mapping



Creating Tables using SQL






Solution1 - Microsoft SQL Server Management Studio
Quick Launch (Ctrl+Q)
File Edit View Query Project Debug Tools Window Help
New Query
Generic Debugger
GAME_STORE
Execute Debug
Object Explorer
Connect
MOHAMMED_ADEL\MOHSQL (SQL S
Databases
System Databases
Database Snapshots
GAME_STORE
Database Diagrams
Tables
System Tables
FileTables
External Tables
Graph Tables
dbo.BRANCH
dbo.CUSTOMER
dbo.DEVELOPMENT_C
dbo.EMPLOYEE
dbo.GAME
dbo.GAME_PLATFORM
dbo.PURCHASE
dbo.SUPPLIES
Views
External Resources
Synonyms
Programmability
Service Broker
Storage
Security
SQLQuery41.sql -...D_ADEL\Moham (52))*
CREATE TABLE PURCHASE
(
Gname VARCHAR(30) NOT NULL ,
Ctel INT NOT NULL ,
Bid INT NOT NULL ,
Date DATE NOT NULL ,
Payment INT NOT NULL,
PRIMARY KEY(Gname, Ctel, Bid),
FOREIGN KEY(Gname) REFERENCES GAME(Name),
FOREIGN KEY(Ctel) REFERENCES CUSTOMER(Tel),
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);
CREATE TABLE SUPPLIES
(
Dname VARCHAR(15) NOT NULL ,
Bid INT NOT NULL
PRIMARY KEY(Dname, Bid),
FOREIGN KEY(Dname) REFERENCES DEVELOPMENT_COMPANY(Name),
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);
100 %
Messages
Commands completed successfully.
100 %
Query executed successfully.
MOHAMMED_ADEL\MOHSQL (14.0 ...
MOHAMMED_ADEL\Moham (52)
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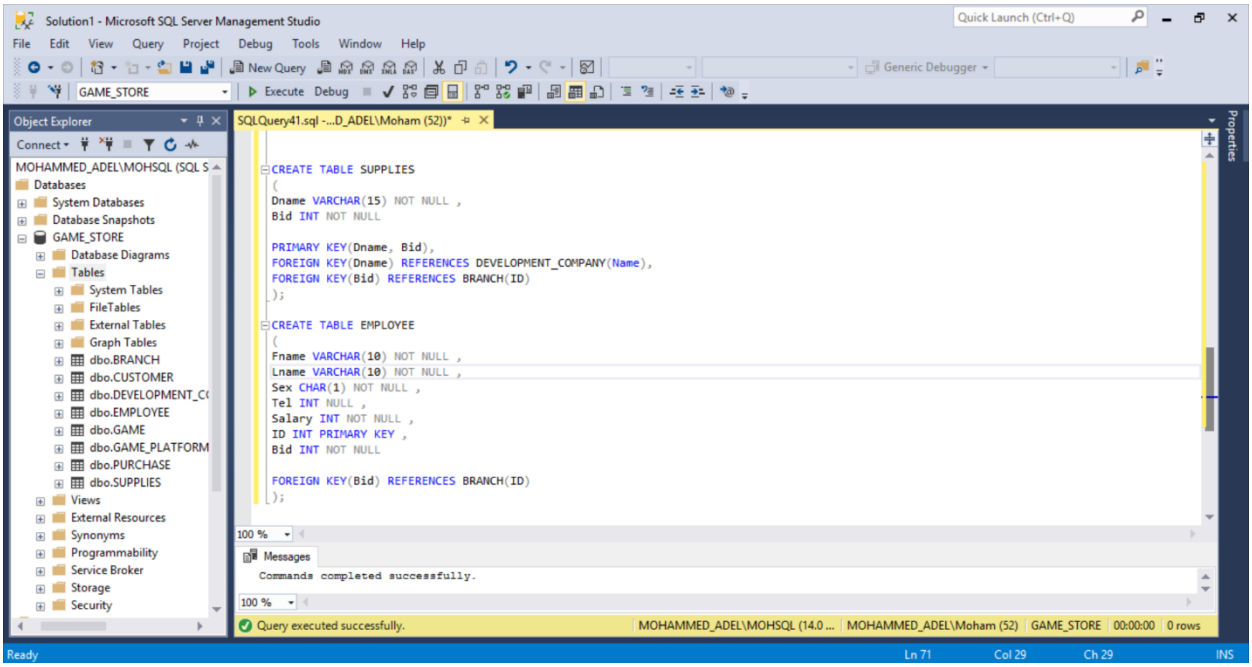
Ready
Ln 71
Col 29
Ch 29
INS
Properties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Views
External Resources
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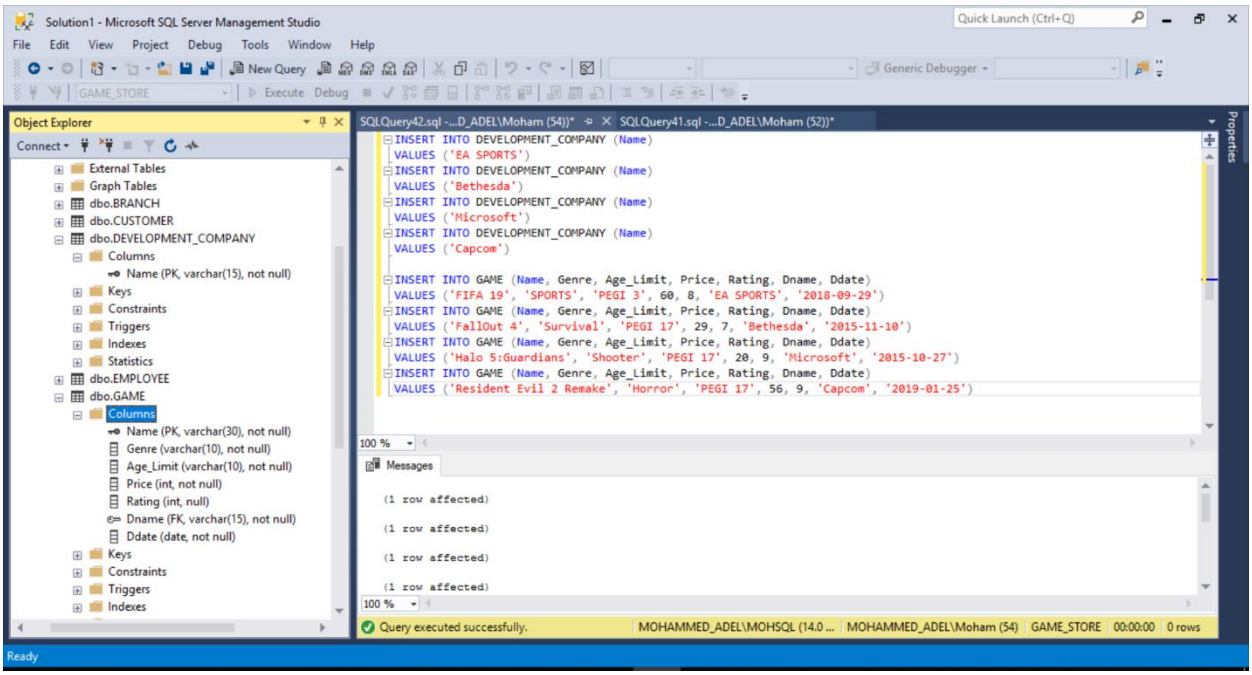
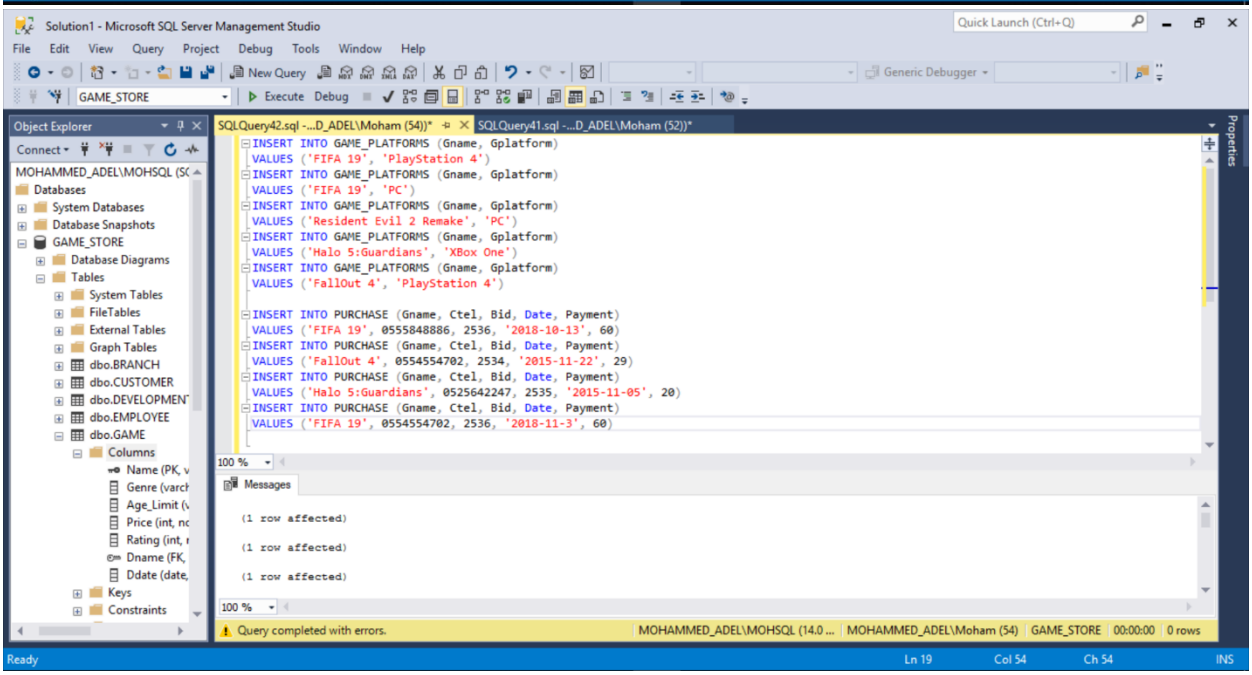
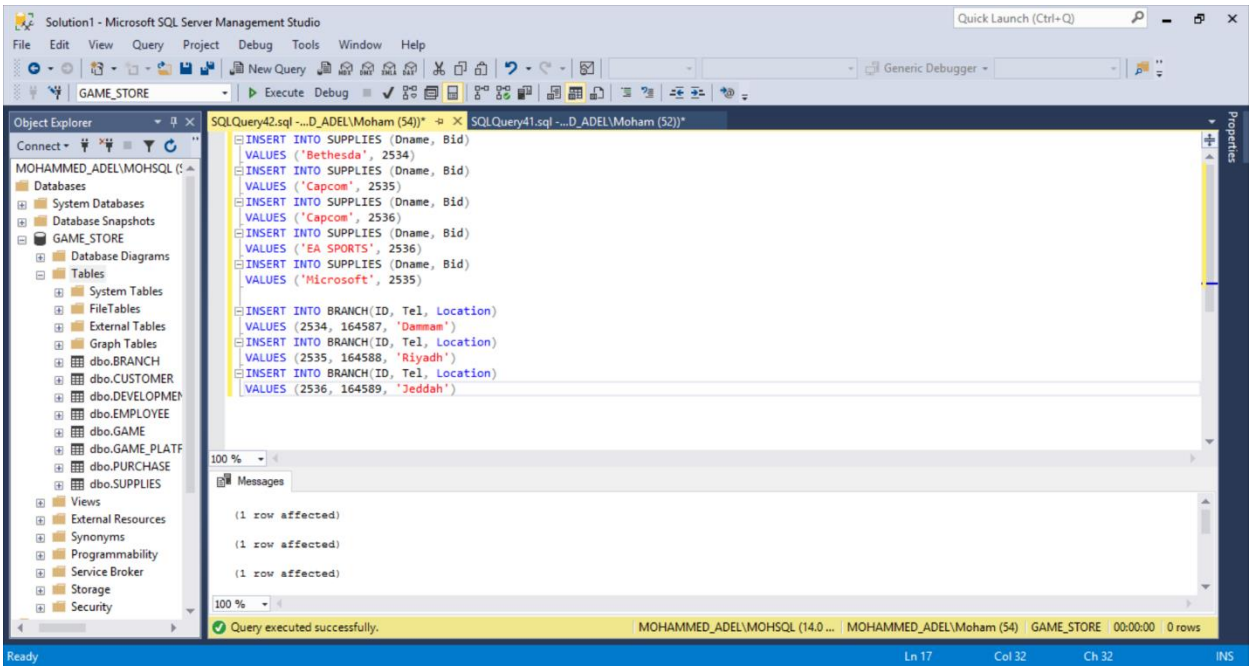
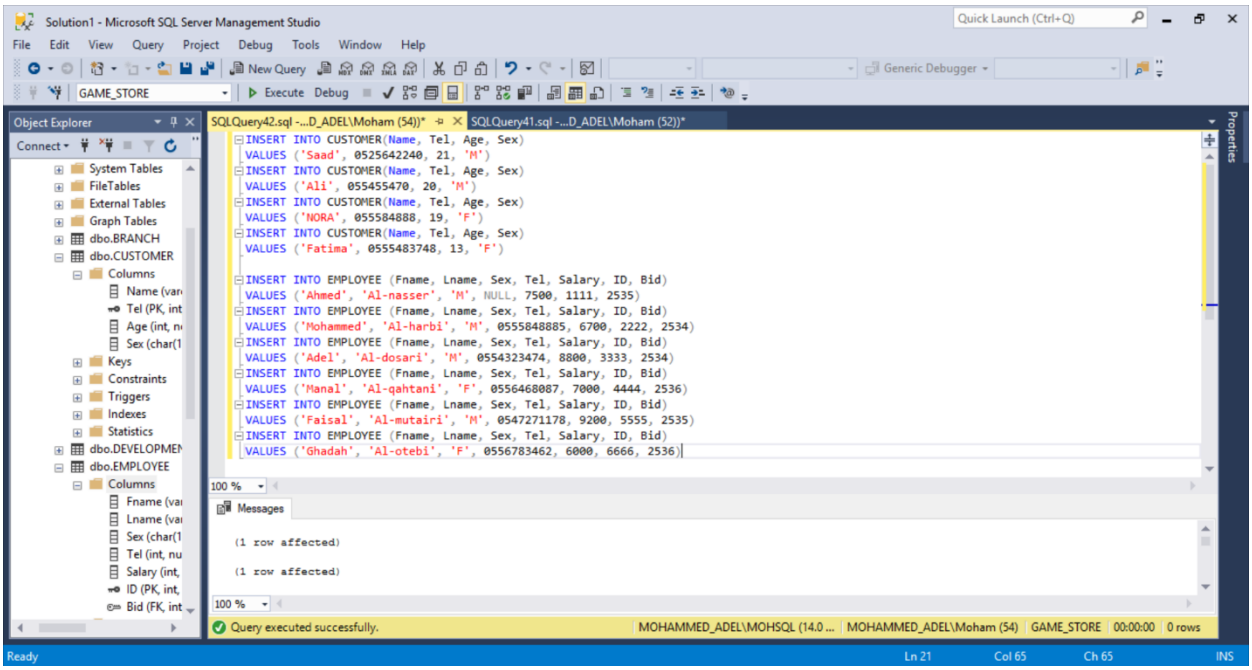
Security
SQLQuery41.sql -...D_ADEL\Moham (52))*
CREATE TABLE SUPPLIES
(
Dname VARCHAR(15) NOT NULL ,
Bid INT NOT NULL
PRIMARY KEY(Dname, Bid),
FOREIGN KEY(Dname) REFERENCES DEVELOPMENT_COMPANY(Name),
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);
CREATE TABLE EMPLOYEE
(
Fname VARCHAR(10) NOT NULL ,
Lname VARCHAR(10) NOT NULL ,
Sex CHAR(1) NOT NULL ,
Tel INT NULL ,
Salary INT NOT NULL ,
ID INT PRIMARY KEY ,
Bid INT NOT NULL
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);
100 %
Messages
Commands completed successfully.
100 %
Query executed successfully.
MOHAMMED_ADEL\MOHSQL (14.0 ...
MOHAMMED_ADEL\Moham (52)
GAME_STORE
00:00:00
0 rows
Ready
Ln 71
Col 29
Ch 29
INS
Properties

Inserting Data into The Tables

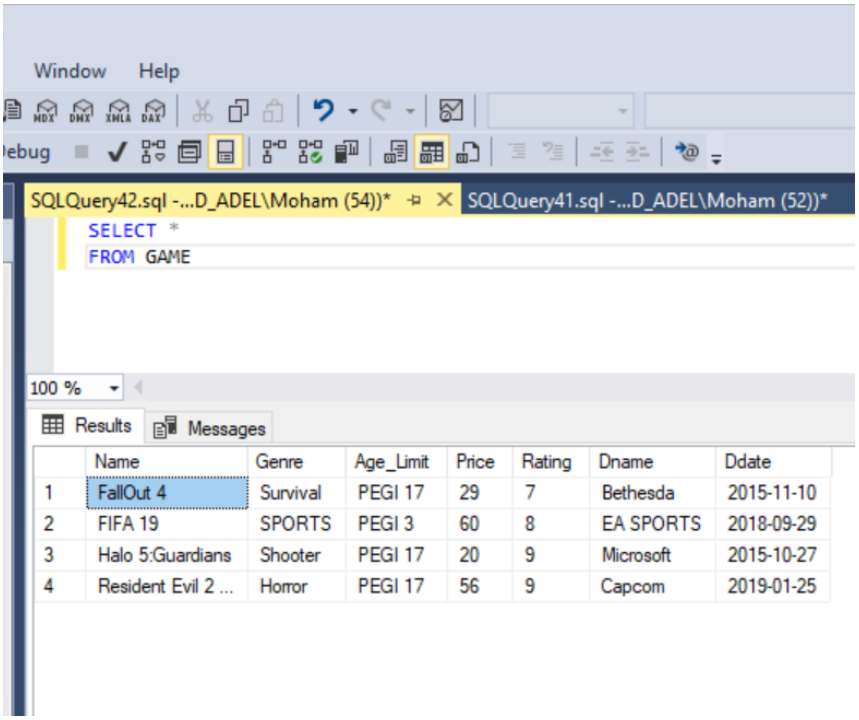




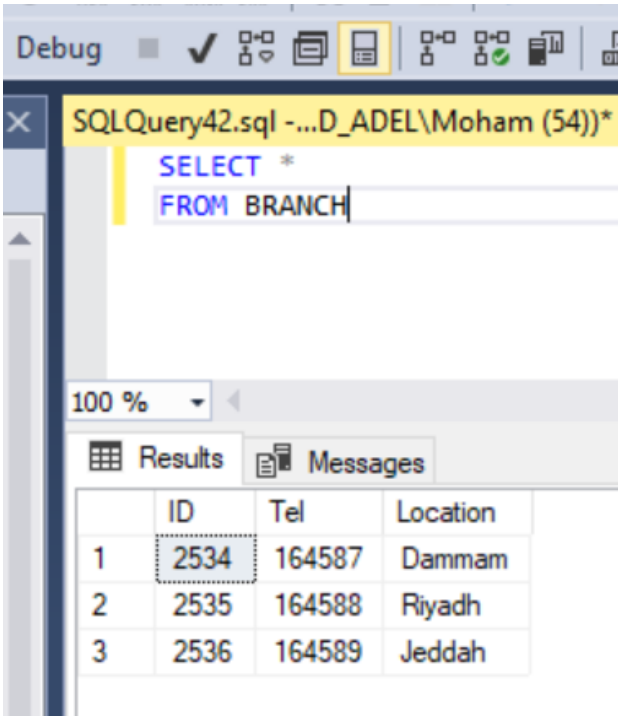

Solution1 - Microsoft SQL Server Management Studio
INSERT INTO SUPPLIES (Dname, Bid)
VALUES ('Bethesda', 2534)
INSERT INTO SUPPLIES (Dname, Bid)
VALUES ('Capcom', 2535)
INSERT INTO SUPPLIES (Dname, Bid)
VALUES ('Capcom', 2536)
INSERT INTO SUPPLIES (Dname, Bid)
VALUES ('EA SPORTS', 2536)
INSERT INTO SUPPLIES (Dname, Bid)
VALUES ('Microsoft', 2535)
INSERT INTO BRANCH(ID, Tel, Location)
VALUES (2534, 164587, 'Dammam')
INSERT INTO BRANCH(ID, Tel, Location)
VALUES (2535, 164588, 'Riyadh')
INSERT INTO BRANCH(ID, Tel, Location)
VALUES (2536, 164589, 'Jeddah')
(1 row affected)
(1 row affected)
(1 row affected)
Query executed successfully.


Solution1 - Microsoft SQL Server Management Studio
INSERT INTO CUSTOMER(Name, Tel, Age, Sex)
VALUES ('Saad', 0525642240, 21, 'M')
INSERT INTO CUSTOMER(Name, Tel, Age, Sex)
VALUES ('Ali', 055455470, 20, 'M')
INSERT INTO CUSTOMER(Name, Tel, Age, Sex)
VALUES ('NORA', 055584888, 19, 'F')
INSERT INTO CUSTOMER(Name, Tel, Age, Sex)
VALUES ('Fatima', 0555483748, 13, 'F')
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Ahmed', 'Al-nasser', 'M', NULL, 7500, 1111, 2535)
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Mohammed', 'Al-harbi', 'M', 0555848885, 6700, 2222, 2534)
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Adel', 'Al-dosari', 'M', 0554323474, 8800, 3333, 2534)
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Manal', 'Al-qahtani', 'F', 0556468087, 7000, 4444, 2536)
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Faisal', 'Al-mutairi', 'M', 0547271178, 9200, 5555, 2535)
INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)
VALUES ('Ghadah', 'Al-otebi', 'F', 0556783462, 6000, 6666, 2536)
(1 row affected)
(1 row affected)
Query executed successfully.

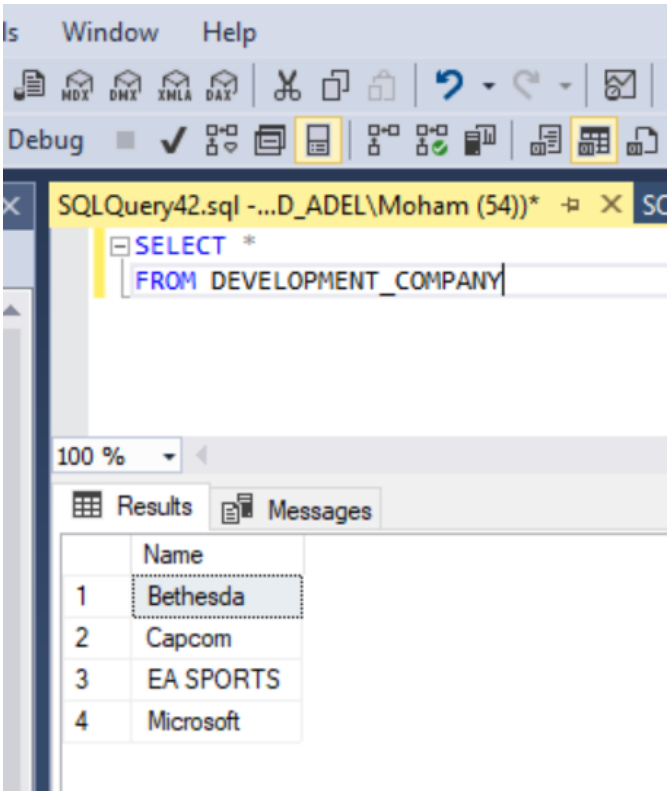
Tables After Insertion



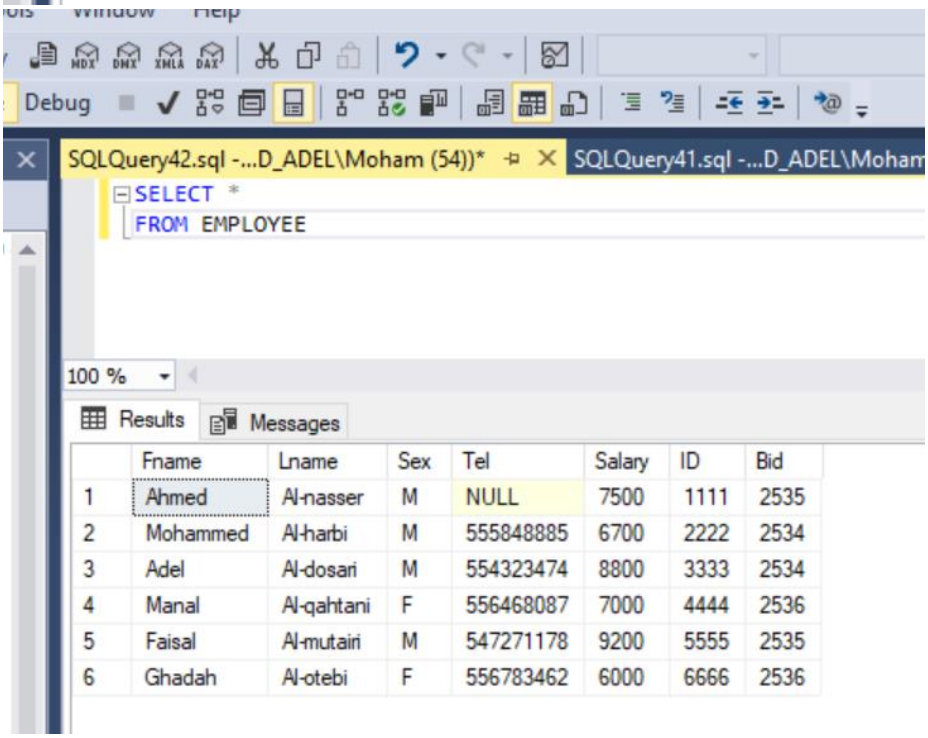
	Name	Genre	Age_Limit	Price	Rating	Dname	Ddate
1	FallOut 4	Survival	PEGI 17	29	7	Bethesda	2015-11-10
2	FIFA 19	SPORTS	PEGI 3	60	8	EA SPORTS	2018-09-29
3	Halo 5:Guardians	Shooter	PEGI 17	20	9	Microsoft	2015-10-27
4	Resident Evil 2 ...	Horror	PEGI 17	56	9	Capcom	2019-01-25



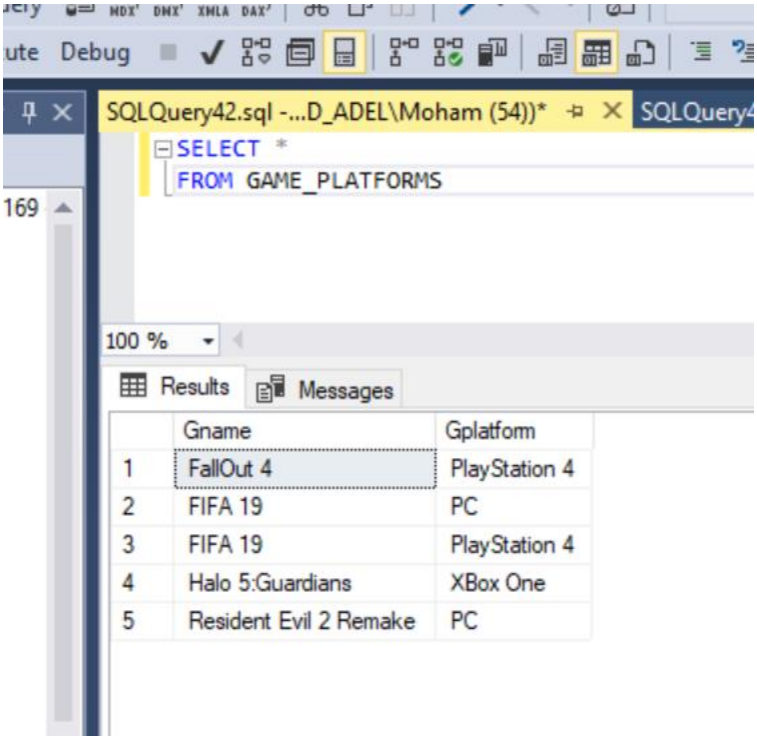
	ID	Tel	Location
1	2534	164587	Dammam
2	2535	164588	Riyadh
3	2536	164589	Jeddah



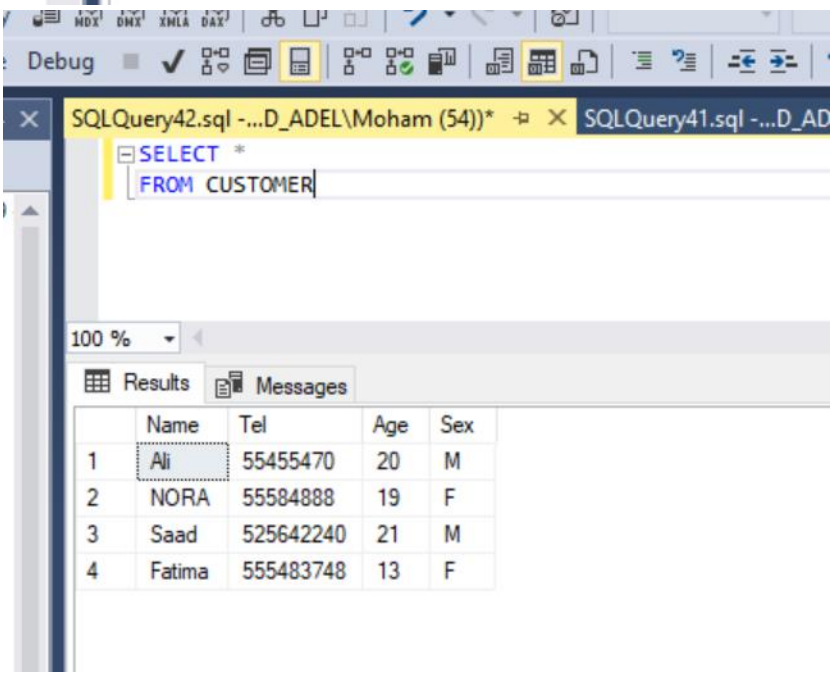
	Name
1	Bethesda
2	Capcom
3	EA SPORTS
4	Microsoft



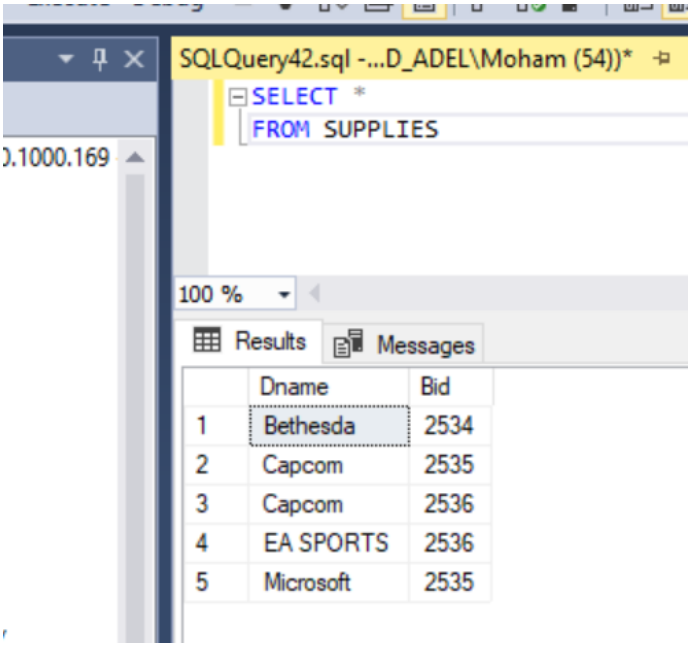
	Fname	Lname	Sex	Tel	Salary	ID	Bid
1	Ahmed	Al-nasser	M	NULL	7500	1111	2535
2	Mohammed	Al-harbi	M	555848885	6700	2222	2534
3	Adel	Al-dosari	M	554323474	8800	3333	2534
4	Manal	Al-qahtani	F	556468087	7000	4444	2536
5	Faisal	Al-mutairi	M	547271178	9200	5555	2535
6	Ghadah	Al-otebi	F	556783462	6000	6666	2536



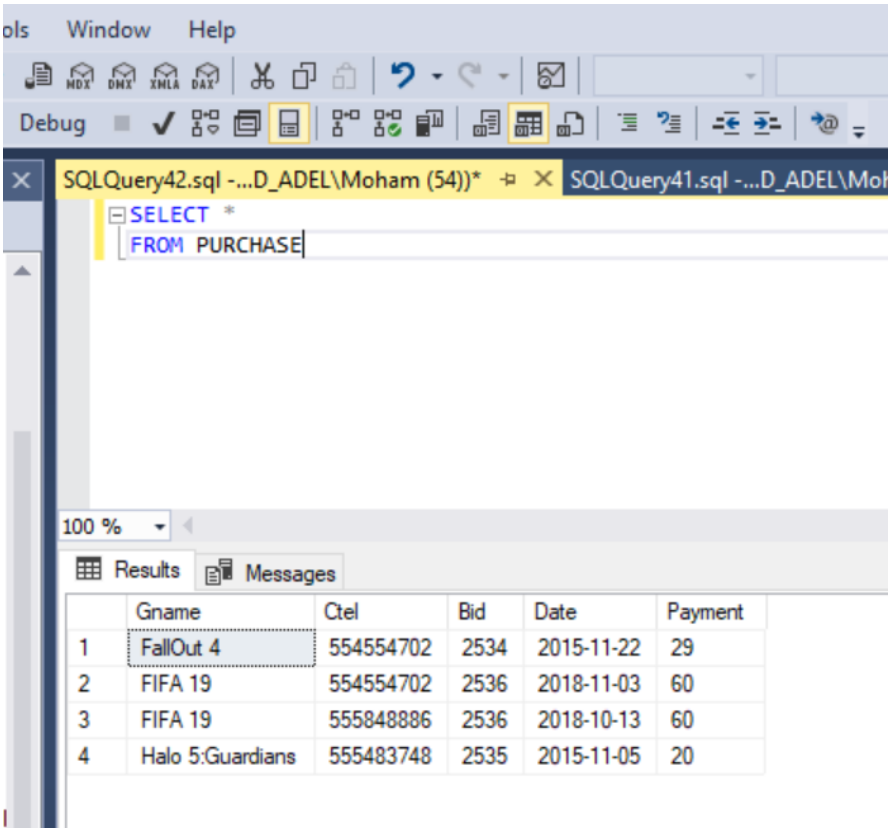
	Gname	Gplatform
1	FallOut 4	PlayStation 4
2	FIFA 19	PC
3	FIFA 19	PlayStation 4
4	Halo 5:Guardians	XBox One
5	Resident Evil 2 Remake	PC



	Name	Tel	Age	Sex
1	Ali	55455470	20	M
2	NORA	55584888	19	F
3	Saad	525642240	21	M
4	Fatima	555483748	13	F



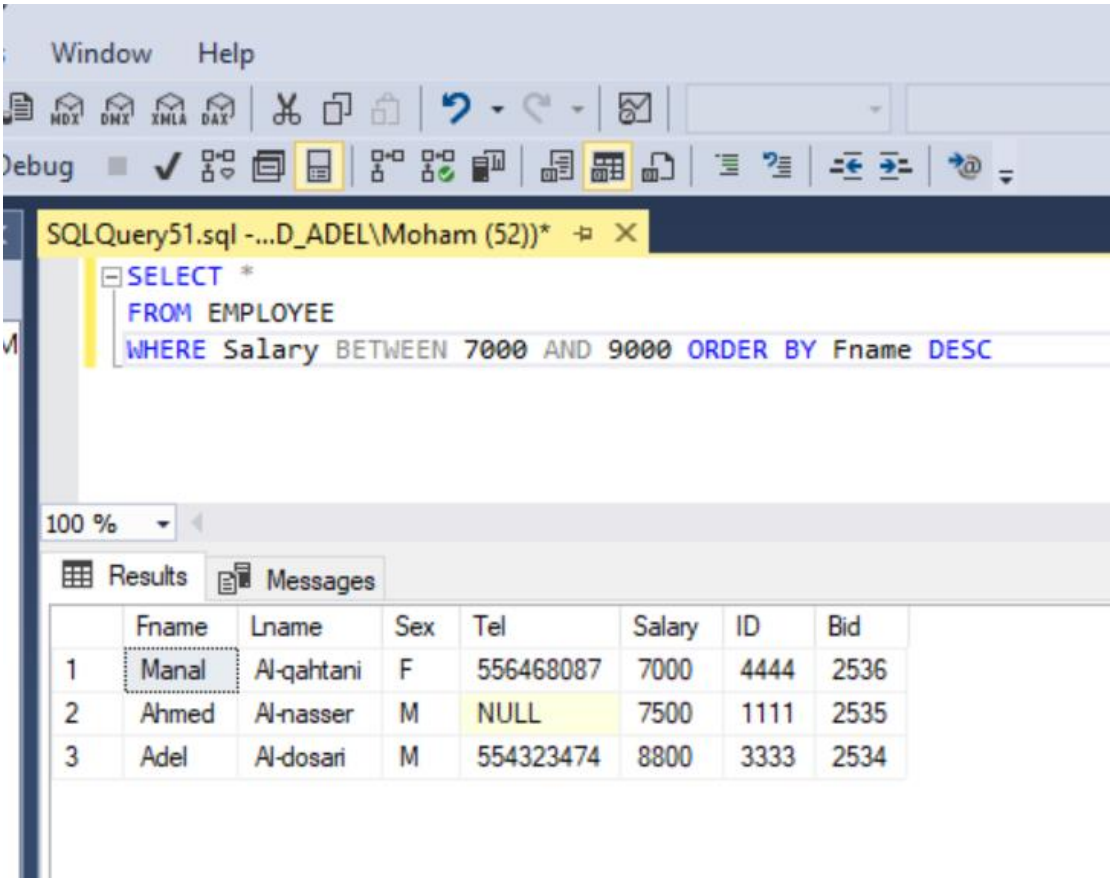
	Dname	Bid
1	Bethesda	2534
2	Capcom	2535
3	Capcom	2536
4	EA SPORTS	2536
5	Microsoft	2535



	Gname	Ctel	Bid	Date	Payment
1	FallOut 4	554554702	2534	2015-11-22	29
2	FIFA 19	554554702	2536	2018-11-03	60
3	FIFA 19	555848886	2536	2018-10-13	60
4	Halo 5:Guardians	555483748	2535	2015-11-05	20

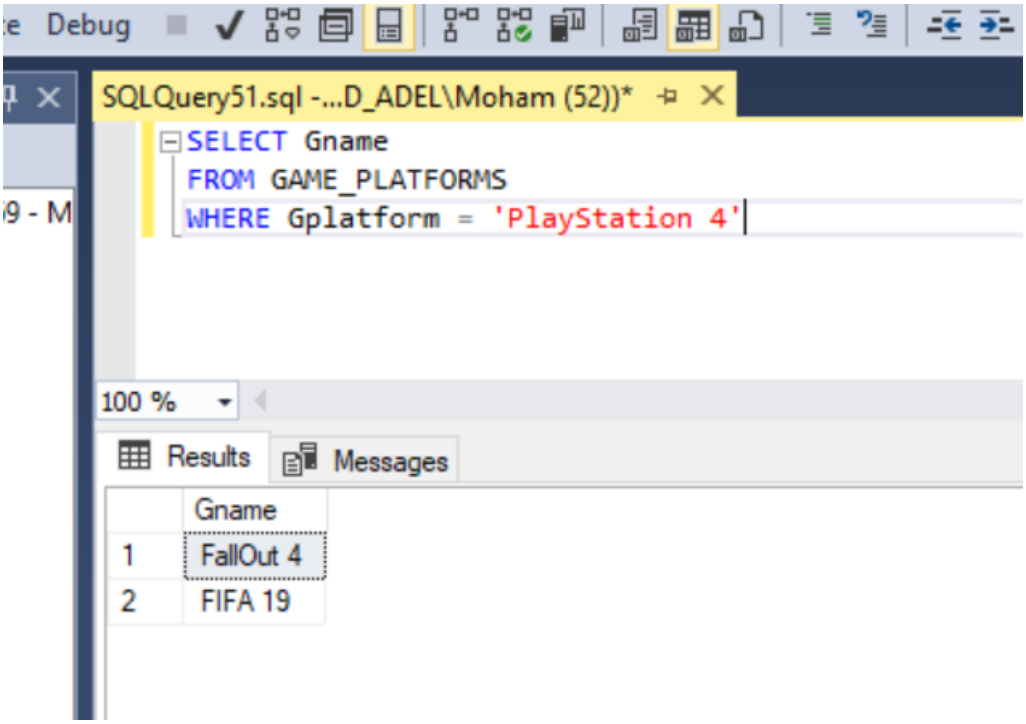
5 Queries:

1- Listing all employees whose salary is between 7000 and 9000 In descending order.

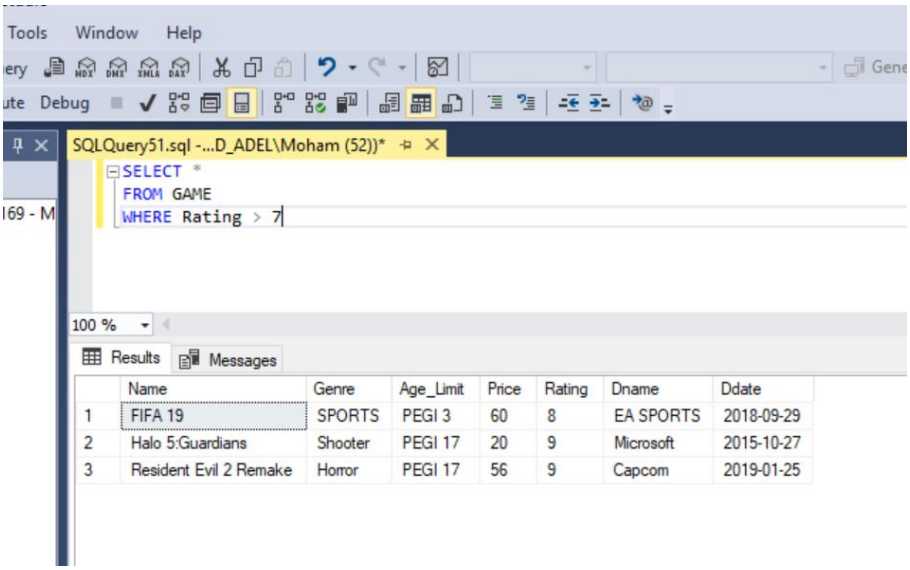


	Fname	Lname	Sex	Tel	Salary	ID	Bid
1	Manal	Al-qahtani	F	556468087	7000	4444	2536
2	Ahmed	Al-nasser	M	NULL	7500	1111	2535
3	Adel	Al-dosari	M	554323474	8800	3333	2534

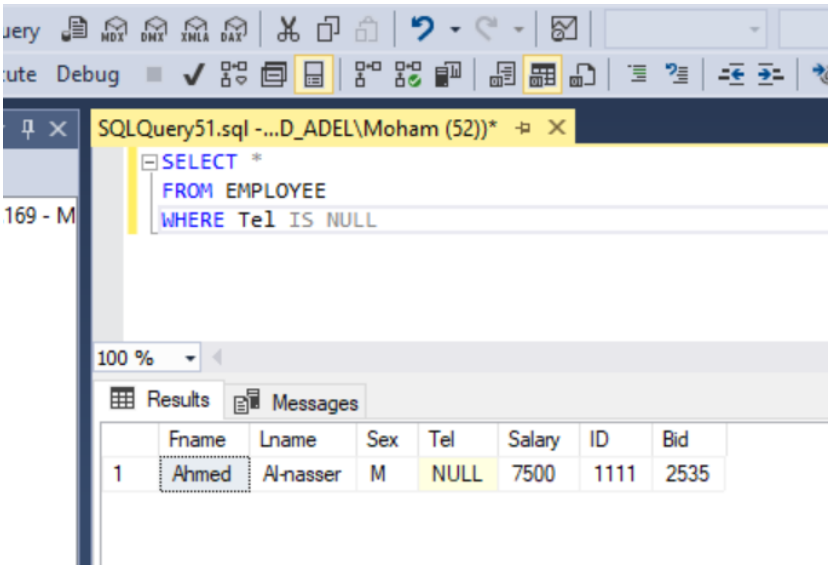
2- Listing all games that can be played on PlayStation 4.



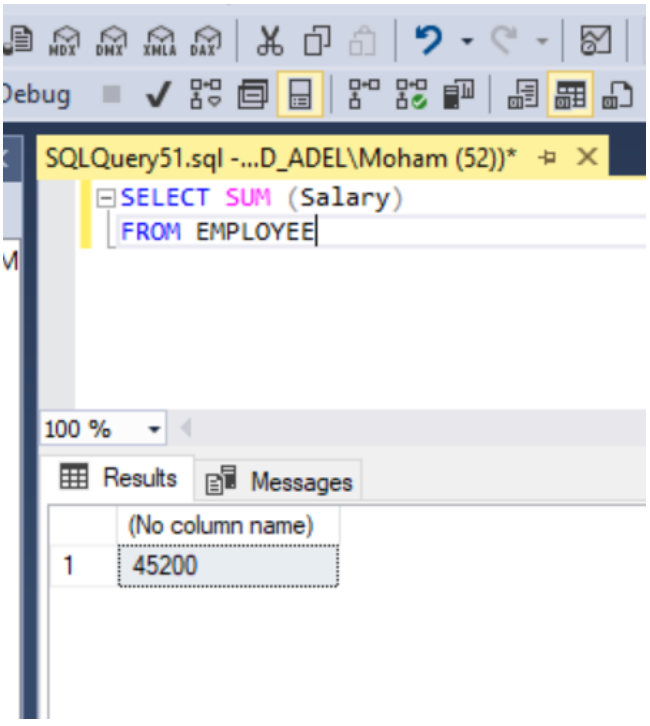
3- Listing all games whose rating is above 7.



4- Listing all employees who do not have telephone number



5- Retrieving the sum of all employees salaries.



SQL Code for Creating Tables.

```
CREATE TABLE DEVELOPMENT_COMPANY
(
Name VARCHAR(15) PRIMARY KEY(Name)
);

CREATE TABLE GAME
(
Name VARCHAR(30) PRIMARY KEY,
Genre VARCHAR(10) NOT NULL,
Age_Limit VARCHAR(10) NOT NULL,
Price INT NOT NULL,
Rating INT,
Dname VARCHAR(15) NOT NULL,
Ddate DATE NOT NULL,

FOREIGN KEY (Dname) REFERENCES DEVELOPMENT_COMPANY(Name)
)

CREATE TABLE GAME_PLATFORMS
(
Gname VARCHAR(30) NOT NULL,
Gplatform VARCHAR(30) NOT NULL,
```

```
PRIMARY KEY(Gname, Gplatform),
FOREIGN KEY (Gname) REFERENCES GAME(Name)
)

CREATE TABLE CUSTOMER
(
Name VARCHAR(30) NOT NULL ,
Tel INT PRIMARY KEY ,
Age INT NOT NULL ,
Sex CHAR(1) NOT NULL
)

CREATE TABLE BRANCH
(
ID INT PRIMARY KEY ,
Tel INT NOT NULL ,
Location VARCHAR(15) NOT NULL
);

CREATE TABLE PURCHASE
(
Gname VARCHAR(30) NOT NULL ,
Ctel INT NOT NULL ,
Bid INT NOT NULL ,
Date DATE NOT NULL ,
```

Payment INT NOT NULL,

PRIMARY KEY(Gname, Ctel, Bid),

FOREIGN KEY(Gname) REFERENCES GAME(Name),
FOREIGN KEY(Ctel) REFERENCES CUSTOMER(Tel),
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);

CREATE TABLE SUPPLIES
(
Dname VARCHAR(15) NOT NULL ,
Bid INT NOT NULL

PRIMARY KEY(Dname, Bid),
FOREIGN KEY(Dname) REFERENCES DEVELOPMENT_COMPANY(Name),
FOREIGN KEY(Bid) REFERENCES BRANCH(ID)
);

CREATE TABLE EMPLOYEE
(
Fname VARCHAR(10) NOT NULL ,
Lname VARCHAR(10) NOT NULL ,
Sex CHAR(1) NOT NULL ,

Tel INT NULL ,

Salary INT NOT NULL ,

ID INT PRIMARY KEY ,

Bid INT NOT NULL

FOREIGN KEY(Bid) REFERENCES BRANCH(ID)

);

SQL Code for Inserting Data.

```
INSERT INTO DEVELOPMENT_COMPANY (Name)
VALUES ('EA SPORTS')
INSERT INTO DEVELOPMENT_COMPANY (Name)
VALUES ('Bethesda')
INSERT INTO DEVELOPMENT_COMPANY (Name)
VALUES ('Microsoft')
INSERT INTO DEVELOPMENT_COMPANY (Name)
VALUES ('Capcom')

INSERT INTO GAME (Name, Genre, Age_Limit, Price, Rating, Dname, Ddate)
VALUES ('FIFA 19', 'SPORTS', 'PEGI 3', 60, 8, 'EA SPORTS', '2018-09-29')
INSERT INTO GAME (Name, Genre, Age_Limit, Price, Rating, Dname, Ddate)
VALUES ('FallOut 4', 'Survival', 'PEGI 17', 29, 7, 'Bethesda', '2015-11-10')
INSERT INTO GAME (Name, Genre, Age_Limit, Price, Rating, Dname, Ddate)
VALUES ('Halo 5:Guardians', 'Shooter', 'PEGI 17', 20, 9, 'Microsoft', '2015-10-27')
INSERT INTO GAME (Name, Genre, Age_Limit, Price, Rating, Dname, Ddate)
VALUES ('Resident Evil 2 Remake', 'Horror', 'PEGI 17', 56, 9, 'Capcom', '2019-01-25')

INSERT INTO GAME_PLATFORMS (Gname, Gplatform)
VALUES ('FIFA 19', 'PlayStation 4')
INSERT INTO GAME_PLATFORMS (Gname, Gplatform)
VALUES ('FIFA 19', 'PC')
INSERT INTO GAME_PLATFORMS (Gname, Gplatform)
VALUES ('Resident Evil 2 Remake', 'PC')
```

INSERT INTO GAME_PLATFORMS (Gname, Gplatform)

VALUES ('Halo 5:Guardians', 'XBox One')

INSERT INTO GAME_PLATFORMS (Gname, Gplatform)

VALUES ('FallOut 4', 'PlayStation 4')

INSERT INTO PURCHASE (Gname, Ctel, Bid, Date, Payment)

VALUES ('FIFA 19', 0555848886, 2536, '2018-10-13', 60)

INSERT INTO PURCHASE (Gname, Ctel, Bid, Date, Payment)

VALUES ('FallOut 4', 0554554702, 2534, '2015-11-22', 29)

INSERT INTO PURCHASE (Gname, Ctel, Bid, Date, Payment)

VALUES ('Halo 5:Guardians', 0525642247, 2535, '2015-11-05', 20)

INSERT INTO PURCHASE (Gname, Ctel, Bid, Date, Payment)

VALUES ('FIFA 19', 0554554702, 2536, '2018-11-3', 60)

INSERT INTO SUPPLIES (Dname, Bid)

VALUES ('Bethesda', 2534)

INSERT INTO SUPPLIES (Dname, Bid)

VALUES ('Capcom', 2535)

INSERT INTO SUPPLIES (Dname, Bid)

VALUES ('Capcom', 2536)

INSERT INTO SUPPLIES (Dname, Bid)

VALUES ('EA SPORTS', 2536)

INSERT INTO SUPPLIES (Dname, Bid)

VALUES ('Microsoft', 2535)

INSERT INTO BRANCH(ID, Tel, Location)

VALUES (2534, 164587, 'Dammam')

INSERT INTO BRANCH(ID, Tel, Location)

VALUES (2535, 164588, 'Riyadh')

INSERT INTO BRANCH(ID, Tel, Location)

VALUES (2536, 164589, 'Jeddah')

INSERT INTO CUSTOMER(Name, Tel, Age, Sex)

VALUES ('Saad', 0525642240, 21, 'M')

INSERT INTO CUSTOMER(Name, Tel, Age, Sex)

VALUES ('Ali', 055455470, 20, 'M')

INSERT INTO CUSTOMER(Name, Tel, Age, Sex)

VALUES ('NORA', 055584888, 19, 'F')

INSERT INTO CUSTOMER(Name, Tel, Age, Sex)

VALUES ('Fatima', 0555483748, 13, 'F')

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Ahmed', 'Al-nasser', 'M', NULL, 7500, 1111, 2535)

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Mohammed', 'Al-harbi', 'M', 0555848885, 6700, 2222, 2534)

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Adel', 'Al-dosari', 'M', 0554323474, 8800, 3333, 2534)

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Manal', 'Al-qahtani', 'F', 0556468087, 7000, 4444, 2536)

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Faisal', 'Al-mutairi', 'M', 0547271178, 9200, 5555, 2535)

INSERT INTO EMPLOYEE (Fname, Lname, Sex, Tel, Salary, ID, Bid)

VALUES ('Ghadah', 'Al-otebi', 'F', 0556783462, 6000, 6666, 2536)